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THE NEW ENGLAND BOTANICAL CLUB

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AN ECOLOGICAL EXCURSION TO MOUNT KTAADN.

LE ROY HARRIS HARVEY.

(Plate 44.)

IN company with a party,[1] representing the Ecological department of the Hull Botanical Laboratory of the University of Chicago, it was again my great pleasure to visit in August of the past year one of the most inaccessible and grandest mountains in New England, Ktaadn.

We took our departure from Stacyville on the fifteenth and spent the following day at Lunksoos in preparation for the mountain. The seventeenth saw us fairly started on our way and it was to be over two weeks before we should again share the hospitality of Lunksoos. Our course lay over the old Ktaadn trail as far as Sandy Stream Pond tote-road. Here we diverged to the northwest traveling along the tote-road for about a mile, then skirting the southern shore of Sandy Stream Pond we came to Ross Camps a few hundred yards beyond. From here we followed the new Rogers trail, recently cut for pack horses, which leads more directly (seven miles) to the South Basin, the site of our camp. Our return was over the same route.

In purpose our visit to the mountain was mainly ecological, espe-

[1] Drs. Henry C. Cowles and Bradley M. Davis, Department of Botany, University of Chicago; Samuel M. Coulter, Shaw School of Botany, St. Louis; A. F. Blakeslee, Department of Botany, Harvard University; John Thompson, Richmond, Indiana; Horace W. Britcher, Department of Biology, University of Maine, Orono; H. G. Barber, New York City; Mrs. Henry C. Cowles, Chicago; Miss Laura H. Bevans, Cook County Normal School, Chicago; Miss F. Grace Smith, Department of Botany, Smith College, Northampton, Massachusetts; Miss Jane Stearns, Chicago; Miss Maud L. Bates, Topeka.

cially in relation to true alpine conditions and climatic and edaphic timber lines. Much interesting data was obtained upon these points and will form the basis of an ecological discussion of the mountain to appear later.

Although the energies of the party were almost wholly devoted to a comprehensive ecological study rather than to purely floristic work, yet many noteworthy plants were recorded and the range of several species widely extended. These will be discussed below.

Composed as our party was of so many botanists, nearly all the great groups of plants had their devotees. So a division of labor was easily adjusted. To Dr. Davis and Miss Smith fell the Algae and Liverworts; Dr. Cowles became responsible for the crustaceous lichens, and Mr. Blakeslee and Miss Stearns for the foliaceous and fruticose forms. Mr. Coulter and Miss Bates devoted their energies to the mosses, while the writer gave his attention to the vascular plants. Reports on all these collections are to be expected.

Entomology was not without its enthusiasts for Mr. Britcher in the Arachnids and Mr. Barber in the Hemiptera are both specialists in their respective groups. Some very important and pioneer contributions along these lines may be expected.

The North West Basin.

The unique feature of our visit to Ktaadn was perhaps the exploration of the North West Basin, as we have called it, by four of the party[1] in a three days' side trip. We are, it is believed, the first scientific party to make a descent into this basin and though it is not the purpose of this article to describe the topography of the mountain, for this has been well done by Hamlin[2], Tarr[3], and others, yet a detailed description of this basin may be of interest, as it seems to be the least known of any part of the mountain. Williams[4] in a footnote speaks of its inaccessibility and the lack of knowledge

[1] Drs. Cowles and Davis, Mr. Blakeslee, and the writer.

[2] Hamlin, C. E. Observations upon the Physical Geography and Geology of Mount Ktaadn. Bull. Mus. Comp. Zool. Harvard 7: 206–223. 1881.

[3] Tarr, R. S. Glaciation of Mt. Ktaadn, Maine. Bull. Geol. Soc. Am. 11: 433–448. 1900.

[4] Williams, E. F. Comparison of the Floras of Mt. Washington and Mt. Katahdin. Rhodora 3: 163. 1901.

concerning it. Hamlin and Tarr seem not to have been aware of its existence.

This North West Basin, as seen from the west slope of the Northern Ridge, appears as an abysmal amphitheatre enclosed on three sides by precipitous walls with a small lake in its floor and with a very broad gateway opening to the northwest. In general form the basin suggests the capital letter V with its base slightly rounded. Its eastern arm is formed by the precipitous West wall of the Northern Ridge extending here very nearly north. The wooded North slope of the North West Spur, omitted from Williams[1] sketch map, makes the other arm of our capital letter. By the confluence of the Northern Ridge and the North West Spur as they join the North Mountain, the rounded base of our letter is formed. The floor of the basin is virtually a shelf cut from the North West Spur, apparently by glacial action. Its altitude, some 2945 feet, is about 50 feet lower than that of South Basin. In width, it varies from 200 to 250 yards. From this shelf a precipitous descent of 250 ft. leads to the valley proper below. The mouth of the basin opens broadly to the northwest into the valley of the Middle Branch of the Wissataquoik, whose southeast boundary is formed by the Northern Ridge extension, while the Sourdnahunk range to the northwest makes its opposite drainage slope.

Nestled at the base of the North West Spur and on the shelf described above are four small ponds, evidently morainic in origin. The largest (Fig. 1), nearly five acres in extent, and the most western is the only one visible from the mountain and then only from the West slope of the Northern Ridge. Rarely seen it has scarcely been reported, for parties with limited time seldom visit this part of the mountain. The shores are boulder strewn, sloping off rapidly to some depth; the spruce, fir, birch, and alders come to its very edge. The outlet stream at the northeast end of the pond plunges almost immediately over the brow of the shelf. It functions, however, only at high water after heavy rains and the Spring freshets and must at such a time go plunging and roaring over the precipitous granite walls in its mad race to the valley 250 feet below. As the bed of the stream was perfectly dry at the time of our visit we used this outlet as a means of descent, but this was possible only through the

[1] Loc. Cit. pg. 162.

abundant aid received from the birch and alder which grow to its very limits, for the outlet has no depth, but the water plunges over the smooth reddish granite as do so many of the slope streams of Ktaadn.

In altitude Lake Cowles (2938 ft.), as it may be called, is hardly above that of Chimney Pond (2928 ft.) though from the mountain it appears several hundred feet higher. While much disappointed in this respect we were, however, recompensed with some rare finds. *Nuphar Kalmianum*, *Nymphaea odorata minor*, *Potamogeton confervoides* and *Isoëtes heterospora* rewarded our endeavors.

The second pond, less than one half as large, which soon comes into sight as one descends the west slope of the Northern Ridge, is the most eastern and lies 250 yards to the east, near the confluence of the two spurs with North Mountain at the base of our capital letter V. Its shore features are similar to those of Lake Cowles except that on the east a heath society comes to the waters edge. Davis Pond, as we may call it (and not Lake Cowles, the largest of the ponds) is fed from above by a high waterfall. This source of water supply seems permanent, for we found a brawling mountain torrent as we slowly and tremblingly made our way down by the aid of the trees over its precipitous and treacherous bed, only to be driven back lower down by a vertical wall of nearly 200 ft. and forced to cross over and descend by an old avalanche-slide farther to the right.

The outlet of Davis Pond, thus differing from that of Lake Cowles, is a permanent stream but must similarly be increased into a powerful plunging waterfall in spring by the great increment of the melting mountain snows and heavy rains. Flowing over the steep walls of the shelf, the outlet stream plunges down the valley to join that of Lake Cowles about a mile below; and together they contribute to the Middle Branch of the Wissataquoik some three miles farther down the valley.

The northwest shore of Davis Pond is rather low and has long been used as winter yards by deer and moose. In places the trees and bushes have been entirely trampled down and killed. In these open places have come up a luxuriant growth of grasses, brakes and various herbs surrounded by an alder zone. Here we found *Splachnum roseum* growing in the greatest profusion on the dung of both deer and moose. *Lycopodium Sitchense*, *Petasites palmata*, *Aster puni-*

ceus, and *Osmunda Claytoniana* in great profusion, were also recorded from here.

Two more small ponds yet remain to be described. Between Lake Cowles and Davis Pond lies the third. It is about 150 ft. by 50 ft., with its longer axis running nearly east and west, and is very shallow, being nearly filled with vegetable debris accumulated from the wooded drainage slopes about it. Its shores are meadow-like and are fast encroaching on the pond proper which is itself so filled with vegetation-islands that one may walk safely across it anywhere. The future of this pond is very evident. It empties into Davis Pond along its northwestern shore.

This meadow-like society gave us an abundance of *Lycopodium inundatum* in its characteristic habitat and such other forms as *Scirpus caespitosus*, *Carex rigida Bigelowii*, *Viola blanda*, *Ledum latifolium*, *Pyrus arbutifolia*, and *Kalmia glauca*.

The last pond, a little larger than the third, is some 150 yards to the northeast of Davis Pond, and lies very near the edge of the shelf and almost in an east and west line with Lake Cowles. The outlet joins that of Davis Pond soon after it enters the valley proper below. In character this pond resembles closely Davis Pond but is less than one third its size. We recorded here no additional rarities.

Rising from and occupying the greater part of the shelf are two large *roches moutonnées* carved out by glaciation (fig. 1). The smaller forms the northeast shore of Davis Pond and the east shore of its outlet, while the larger one lies east and west extending from the outlet of Davis Pond to Lake Cowles. The summits, some 10 to 15 feet above the general level of the shelf, are flat-topped and present an unique plant society.

Wooded at the base and up the slopes by spruce, fir, and birch, the flat glaciated tops present a striking contrast in a well developed alpestrine heath society (fig. 2). *Kalmia angustifolia* is the dominant species, with *Cassandra calyculata* and *Ledum latifolium* as secondary forms. Together they give the society its characteristic xerophytic tone. Less important forms are *Chiogenes serpyllifolia*, *Empetrum nigrum*, and *Vaccinium canadense* all growing in the dense mats of *Cladonia rangiferina* and its less common variety *alpestris*. Around the bases of bare knobs of rock *Vaccinium uliginosum* is found densely matted.

Spruce islands (fig. 2) of low straggling trees have pushed out into

this heath, which is also being encroached upon from below by the forest. That this heath is one day doomed to be a feature of the past can hardly be doubted.

At the base of the South wall of our basin, over which the cataract inlet of Davis Pond falls, is a meadow-like society similar to that found at the base of the dripping West wall of the North Basin. Indeed, its very presence is due to the spray and seepage from the cliffs above. *Calamagrostis Canadensis*, *C. Langsdorfii*, *Scirpus caespitosus*, *Prenanthes trifoliolata*, *Aster radula*, *Habenaria dilatata*, *Solidago macrophylla*, *Arnica Chamissonis*, and *Diervilla trifida* are among the more characteristic forms which constitute this meadow society.

Additions to the Vascular Flora of Mount Ktaadn.

In presenting these additions and extensions in range of the flora of Mount Ktaadn it must be stated that our report embraces much territory previously unexplored, the North West Basin, the west slopes of the South Mountain, the North Spur, and the outer limits of the Great Basin including a small sphagnum bog along the trail near the foot of Lower Basin Pond. Many of our rarest finds, however, were made in those places most thoroughly explored by former parties, which illustrates the very restricted distribution of the rarer forms and strongly emphasizes "that many seasons will be required before we know approximately the bulk of its flora."

We were disappointed in not finding the rare little *Saxifraga stellaris comosa*, which has here its only stations in the eastern United States, and the evasive *Carex rariflora* not reported since Prof. Goodale found it in 1861. Several species of carices and grasses also escaped our notice. Though we found not all the old we were richly rewarded by the new. Fernald's summary[1] of the Ktaadn flora enumerates one hundred and eighty-three species and varieties. To this we have added thirty-eight forms, making the total known vascular flora of Mount Ktaadn two hundred and twenty-one species and varieties.

In the appended list the species new to Ktaadn are indicated by an

[1] Fernald, M. L. The Vascular Plants of Mount Katahdin. Rhodora 3: 166–177. 1901.

asterisk (*) before the name. Further notes on distribution will be found under each species. No asterisk being used an extension in range only is indicated.

Osmunda Claytoniana L. Sphagnous depressions, mesophytic woods, Camp Kennedy; "Moose yards," North West Basin.

* *Osmunda cinnamomea* L. Growing abundantly on the northern shore of the sphagnum bog, Great Basin.

Aspidium aculeatum Braunii Doell. Inlet of Chimney Pond, half way up to the crest, where it occurred only sparingly.

* *Asplenium Filix-foemina* Bernh. Common in mesophytic woods of the Great Basin, extending into the North Basin and as far as Camp Kennedy in the South Basin; common in the North West Basin and along the west slopes of the North Spur.

Pteris aquilina L. Open places, South Basin; common in sphagnum bog, Great Basin.

Lycopodium Selago L. From summit to shores of Lower Basin Pond, imperceptibly grading into *L. lucidulum* Michx. *L. Selago* is apparently a xerophytic form of *L. lucidulum*, which replaces it in more mesophytic habitats. All transitions were found varying with the environment.

* *Lycopodium inundatum* L. Abundant on the meadow-like shores of a small pond in the North West Basin.

* *Lycopodium annotinum* L. Common in mesophytic woods, South Basin, and in the *Krummholz* (scrub growth) on the table-land. Passes into *L. annotinum pungens* Spring, which replaces the type in xerophytic habitats. Extends up to West Peak.

Lycopodium Sitchense Rupr. Frequent on floor of North West Basin. We are able to record an interesting variation in the length of the peduncle of this species. Lloyd and Underwood[1] in their review of the North American species of this genus write in respect to the above species: "peduncles short (less than 1 cm.)." One specimen bearing nine strobili gave respectively the following measurements of the peduncle: 1.5, 1., .8, 1., .8, .2, .3, sessile, and .1 cm. Another specimen from a shaded habitat bearing three strobili possessed peduncles of

[1] Bull. Torr. Bot. Club, 27: 162. 1900.

the following length, 2.5, 2., and 1.8 cm. respectively. As the shorter peduncled forms are invariably those from exposed positions obviously this difference in peduncular length is one of ecological variation in response to edaphic conditions.

* *Isoëtes heterospora* Eaton. Growing in 1–5 ft. of water, rocky shores of Lake Cowles where it was very abundant. This locality is its second in Maine (Jordan Pond, Mt. Desert, being the other) and extends its northern limit about 125 miles as well as its altitudinal limit some 1000 feet.

Isoëtes echinospora Braunii Eng. Common in 1–2 ft. of water, rocky shores, Lower Basin Pond (2500 ft.). It is interesting in this respect to note the occurrence of this species in the Lake of the Clouds (3500 ft.), Mt. Mansfield, Vt.

* *Potamogeton confervoides* Reichb. Sparsely growing in 1 foot of water, Lake Cowles.

* *Scheuchzeria palustris* L. Abundant as a pioneer in the sphagnum bog, Great Basin.

* *Zizania sp.* Common in Middle and Lower Basin Ponds; North West Basin Ponds.

* *Brachyelytrum erectum* Beauv. Along path leading from Camp Kennedy to Chimney Pond. Not common.

* *Poa alpina* L. Rare on the West walls of the North Basin at 4500 ft.

* *Bromus ciliatus* L. Common in the alpestrine meadow society at the foot of the dripping West walls of the North Basin ; in a similar habitat South West wall of North West Basin.

* *Eriophorum gracile* Koch. Common in the sphagnum bog, Great Basin.

* *Carex pauciflora* Lightf. Common in the sphagnum bog, Great Basin.

* *Carex intumescens* Rudge. Frequent in meadow society at base of the dripping West wall of the North Basin; in similar habitat, base of North East wall of North West Basin; meadow, Dry Pond.

* *Juncus articulatus* L. Characteristic of the boggy shores of Lower Basin Pond.

* *Smilacina trifolia* Desf. Very characteristic of the border of the sphagnum bog, Great Basin.

* *Habenaria obtusata* Rich. Abundant in the mesophytic woods

of the Great Basin extending up in the South Basin to the foot of Saddle Slide.

* *Populus balsamifera* L. Two clumps were recorded as on the west shore of the Rocky Ponds in the North Basin.

* *Arceuthobium pusillum* Peck. On *Picea nigra*; extends well up in the Great Basin; on the east shore at the mouth of Lower Basin Pond outlet it forms a beautiful example of Arceuthobium *Krummholz.*

* *Nuphar Kalmianum* Ait. Common, rocky shores of Lake Cowles.

* *Nymphaea odorata minor* Sims. Less abundant and with the above.

* *Actaea alba* Bigel. Rare in mesophytic woods, Great Basin; extending up as far as Dry Pond.

* *Sarracenia purpurea* L. Common in the sphagnum bog, Great Basin.

* *Drosera intermedia* Hayne. A pioneer in the sphagnum bog, Great Basin; growing in the shallow water with *Scheuchzeria.*

* *Pyrus arbutifolia* L. f. Abundant, the sphagnum bog, Great Basin; North West Basin.

* *Amelanchier spicata*, Dec. Rare, West wall of North Basin on gravelly shelf.

* *Trifolium repens* L. Few plants introduced at old camp site, North shore of Chimney Pond.

Empetrum nigrum L. It is of interest to note the occurrence of this species in the sphagnum bog, Great Basin.

* *Acer Pennsylvanicum* L. Common in "cuttings" at base of West slopes of North Spur.

* *Aralia nudicaulis* L. Mesophytic woods, Great Basin.

Osmorrhiza sp. A species of Osmorrhiza occurs frequently in the mesophytic woods, North West Basin.

* *Monotropa uniflora* L. Abundant in mesophytic woods, Great Basin, extending to foot of Saddle Slide; North West Basin, mesophytic woods.

Monotropa Hypopitys L. Abundant in mesophytic woods; having a similar distribution to the species above with which it always occurs.

Vaccinium uliginosum L.

Vaccinium Vitis-Idaea L.

Chiogenes serpyllifolia Salisb.

It is of interest to note in addition to *Empetrum nigrum* the occurrence of these ericads in the sphagnum bog, Great Basin.

* *Prunella vulgaris* L. Introduced at old camp site, Chimney Pond.

* *Galeopsis Tetrahit* L. Introduced around "Camp Kennedy"; Chimney Pond; Rogers trail.

* *Rhinanthus Crista-Galli* L. Rare, gravelly shelves, dripping West wall, North Basin (4600 ft.). This addition makes another species in common with Mt. Washington, reducing by one the species peculiar to the latter.

* *Plantago major* L. Introduced at old camp site, Chimney Pond.

Galium triflorum Michx. West walls, North Basin; South West walls, North West Basin.

Linnaea borealis L. Mesophytic woods, Great Basin, extending into the *Krummholz* where it reaches perhaps its greatest development.

* *Lobelia Dortmanna* L. Rare, rocky shores of Lake Cowles, North West Basin.

* *Aster puniceus* L. Uncommon, shores of Lower Basin Pond; "Moose Yards," North West Basin, where a single plant only was noticed. Its determination was based wholly upon vegetative characters as the specimen was not in flower. It was found again later in flower near Saddle Slide.

* *Anaphalis margaritacea* Benth. & Hook. Sparingly on Saddle Slide.

* *Petasites palmata* A. Gray. Common in "Moose Yards" in the North West Basin. No flowering specimens were found.

Further Notes on the Hepaticae of Mt. Ktaadn.

The notes and determinations of the Liverworts, collected by Dr. Davis and Miss Smith, have been placed in my hands for report. The determinations were made by Dr. Alexander W. Evans. It is to be much regretted that Kennedy and Collins in their list[1] have

[1] Kennedy, G. G. and Collins, J. F., Bryophytes of Mount Katahdin. Rhodora 3: 181. 1901.

given no distributional notes. Consequently I have listed the entire collection with notes on their distribution. To the seventeen reported forms we add ten making a total of twenty-eight species of Hepaticae now known to Mt. Ktaadn.

The asterisk has the same meaning as in the list of vascular plants above.

* *Pellia*? Specimens all sterile. Rocky shores of ponds in the North West Basin; similar habitat, Chimney Pond.

Marsupella emarginata (Ehrh.) Dumort. In water along shores of Lower Basin Pond; North Peaks, among rocks.

* *Jamesoniella autumnalis* (DC.) Steph. In woods North West Basin, growing with *Ptilidium ciliare* and *Lepidozia reptans*.

Lophozia ventricosa (Dicks.) Dumort. Rocky shores of Chimney Pond; Saddle, among rocks; Dry Brooks, among rocks.

Lophozia inflata (Huds.) M. A. Howe. Tableland, among rocks; sphagnum bog; shores of Lower Basin Pond.

* *Lophozia Michauxii* (Web.) Macoun. In alpine mat, Saddle and Tableland.

Lophozia? Among rocks, Tableland.

* *Mylia Taylori* (Hook.) S. F. Gray. In alpine mat among wet rocks, East slope near Saddle.

* *Cephalozia bicuspidata* (L.) Dumort. Among rocks, Saddle and Tableland.

* *Cephalozia lunulaefolia* Dumort. On old logs, North Basin trail.

* *Kantia trichomanis* (L.) S. F. Gray. On old logs, North Basin trail.

Bazzania trilobata (L.) S. F. Gray. Borders of Dry Pond; South Basin, moist woods generally.

* *Lepidozia reptans* (L.) Dumort. On old logs and rotten wood, North West Basin.

Blepharostoma trichophyllum (L.) Dumort. On old logs in woods, North Basin trail.

* *Temnoma setiforme* (Ehrb.) M. A. Howe. Among rocks along shores of Chimney Pond.

Ptilidium ciliare (L.) Nees. Very common everywhere extending to the summit.

Diplophylleia taxifolia (Wahl.) Trevis. In a spring near Lower Basin Pond.

Scapania undulata (L.) Dumort. Borders of Lower Basin Pond; on logs in Great Basin; dry brook near brow of Table-land.

* *Frullania Oakesiana* Aust. On balsam fir, South Basin. Rather common.

Hull Botanical Laboratory, University of Chicago.

Explanation of Plate 44.— Fig. 1 (upper): Shelf at base of the North West Spur of Ktaadn, showing Lake Cowles and the larger of the *roches moutonnées* to the right; Sourdnahunk Range to the west.

Fig. 2 (lower): Heath society on the larger of the *roches moutonnées*, showing the encroachment of spruce; Sourdnahunk Range to the west.

RECENTLY RECOGNIZED SPECIES OF CRATAEGUS IN EASTERN CANADA AND NEW ENGLAND, — I.

C. S. Sargent.

Since the publication in Rhodora in February and April, 1901, of several species of Crataegus found in the Champlain valley by Mr. Ezra Brainerd and other Vermont botanists, and in the neighborhood of Montreal by Mr. J. G. Jack, numerous collections of these plants have been made in Canada and New England. These disclose new forms which have previously remained unrecognized. Some of these are described in the following papers, while others cannot be properly characterized until they have been more fully studied in the field.

§ Crus-galli.

Crataegus exigua, n. sp. Glabrous with the exception of a few hairs along the upper side of the midribs of young leaves. Leaves mostly erect, oblong-obovate and rounded or acute at the apex, cuneate and entire below the middle, above and often only toward the apex finely serrate, with straight or incurved teeth; bright red when they unfold and nearly fully grown when the flowers open, at maturity subcoriaceous, dark green and lustrous on the upper surface, paler and dull green on the lower surface, 3.5–5 cm. long, 1.5–2.5 cm. wide, with broad midribs raised and rounded on the upper side and

four or five pairs of thin primary veins almost entirely within the parenchyma; leaves of vigorous shoots oval, acute or acuminate, coarsely glandular-serrate, with prominent primary veins, stout petioles often red in the autumn, their stipules falcate, acuminate, coarsely glandular-serrate, 1–1.2 cm. long; petioles wing-margined nearly to the base, 8–12 mm. long. Flowers 1.5–1.7 cm. in diameter on slender pedicels, in broad 17–22-flowered thin-branched compound corymbs; bracts and bractlets minute, linear, red, caducous; calyx-tube narrowly obconic. the lobes elongated, narrow, acuminate, often red at the tips, entire or sparingly glandular, with minute red glands, reflexed after anthesis; stamens 8–10, usually 10; anthers deep rose-purple; styles 1 or very rarely 2. Fruit erect on thin rigid pedicels, in broad many-fruited clusters, oblong, full and rounded at the ends, bright crimson marked by numerous dark red dots, 10–11 mm. long, 9–10 mm. wide; calyx broad with a shallow cavity and spreading closely appressed lobes; flesh thin, yellow, dry and mealy; nutlet 1, narrowed from the middle to the obtuse ends, prominently ridged on the dorsal face, with a high rounded ridge, 8–10 mm. long, or rarely 2 and then smaller and compressed on the inner face.

A broad round-topped shrub 2–3 m. in height with numerous stout stems covered with smooth pale gray bark, and slender slightly zigzag branchlets marked by small oblong pale lenticels, dark olive green tinged with red when they first appear, dull reddish brown or orange-brown during their first season, becoming pale gray-brown the following year and armed with many stout straight or slightly curved spines generally spreading at right angles, chestnut-brown and lustrous while young, finally becoming ashy gray, usually 4–5 cm. long. Flowers during the first week of June. Fruit ripens and falls during the first week of October.

Connecticut: Waterford, on the ridge east of Fog Plain Brook, and pastures near Gilead, June and October 1902; East Haven, June 17, 1902; Shelden's Cove, Lyme, September 1902; Stonington, September 1902, *C. B. Graves.*

This shrubby species is well distinguished from *Crataegus Crus-galli*, Linnaeus, the only other species of this group which has been found in New England, by its usually solitary style and nutlet, its smaller more oblong brighter-colored fruit which falls as soon as ripe early in October, while the fruit of *Crataegus Crus-galli* remains on the branches usually until spring, and by its shrubby habit.

§ Pruinosae.

* Stamens 20.

+ Anthers rose color or lilac.

Crataegus pruinosa, K. Koch. Sargent, *Silva N. Am.* xiii. 61, t. 48.

Colonies of this widely distributed species differing from the type only in rather longer calyx-lobes and in smaller duller colored fruit were found last year in North Lancaster and Shirley, Massachusetts, by *Mrs. John E. Thayer.*

Crataegus festiva, n. sp. Glabrous. Leaves broadly ovate, acute, full and rounded, concave-cuneate or rarely subcordate at the entire base, coarsely and mostly doubly serrate above, with straight teeth tipped with large red glands, often irregularly divided into short lateral lobes; tinged with red as they unfold, and about half-grown and light green when the flowers open, at maturity membranaceous, dark bluish green on the upper surface, pale yellow-green on the lower surface, 5–8 cm. long, 4–6 cm. wide, with stout light yellow midribs deeply impressed on the upper side and often tinged with red below near the base, and 4 or 5 pairs of thin obscure primary veins extending obliquely to the points of the lobes; petioles slender, sparingly glandular, 2–2.4 cm. long; stipules linear, glandular-serrate, caducous; on leading shoots leaves oblong-ovate, acute or acuminate, broadly concave-cuneate and narrowed below into stout wide-margined petioles, 3-lobed with broad acute lobes, the lateral lobes much smaller than the terminal lobe, sometimes 7–8 cm. long and broad, their stipules foliaceous, lunate, irregularly and coarsely glandular-serrate, 1.5–1.8 cm. long, persistent. Flowers 2.6–2.7 cm. in diameter when fully expanded, on slender pedicels, in broad many-flowered thin-branched compound corymbs; bracts and bractlets oblong-obovate to linear, acute, glandular-serrate, caducous; calyx-tube broadly obconic, the lobes abruptly narrowed from broad bases, acute, prominently nerved, slightly serrate above the middle, with small glandular teeth, or nearly entire, reflexed after anthesis; stamens 16–20; anthers large, deep rose color; styles 3–5. Fruit erect in few-fruited clusters, subglobose, dull red, pruinose, 10–11 mm. in diameter; calyx prominent, sessile, with a broad deep cavity, and enlarged acuminate often coarsely serrate spreading or erect lobes; flesh thin, dry and hard, insipid to the taste, greenish white; nutlets usually 3, acute at the ends, rounded and occasionally slightly ridged on the back, 6–7 mm. long.

A shrub 1–2 m. high, with numerous intricately branched stems covered with dark gray bark and rarely more than 5 cm. in diameter,

and slender zigzag branchlets green tinged with red when they first appear, dull purple and marked by oblong pale lenticels during their first season, becoming reddish brown the following year, and armed with numerous slender nearly straight lustrous chestnut-brown spines 4–5 cm. long. Flowers during last week of May. Fruit ripens from the first to the middle of October and falls slowly. Late in the autumn the leaves turn a dull purple color.

CONNECTICUT: Open rocky pastures near the shores of Niantic River, East Lyme and from one to two miles north of the village of Niantic, *C. B. Graves*, May and October 1902.

Crataegus Pequotorum, n. sp. Glabrous. Leaves ovate, acute or acuminate, rounded or broadly cuneate at the entire base, sharply and doubly glandular-serrate above, rarely divided into short acute lateral lobes; thin, often concave, dull light green above, paler below and nearly fully grown when the flowers open, at maturity membranaceous, dark blue-green on the upper surface, paler on the lower surface, 5–6 cm. long, 4–5 cm. wide, or on vigorous shoots 6.5–7 cm. long and broad, with slender midribs impressed on the upper side and 4 or 5 pairs of thin primary veins; petioles slender, slightly or on leading shoots broadly wing margined at the apex, 2–3 cm. long. Flowers 1.5 cm. in diameter, on slender elongated pedicels in simple or rarely compound 3-6, very rarely 9-flowered thin-branched corymbs; bracts and bractlets minute, oblong-obovate, glandular-serrate, caducous; calyx-tube broadly obconic, the lobes gradually narrowed from broad bases, short, acuminate, tipped with dark glands, entire or rarely obscurely serrate, reflexed after anthesis; petals occasionally deep rose color; stamens 18–20; anthers large, lilac color; styles 4 or 5, rarely 3. Fruit more or less pendant, short-obovate, full and rounded at the apex, abruptly narrowed below into the enlarged apex of the pedicel, obtusely 4 or 5-angled, 9–11 mm. long, 11–13 mm. wide, dark crimson, pruinose, marked by numerous large dark lenticels; calyx prominent, with a distinct tube, a broad shallow cavity and spreading and reflexed lobes; flesh thick, hard but somewhat juicy, insipid, crimson; nutlets 3–5, acute at the ends, thin, rounded and slightly grooved on the back, 7 mm. long.

An arborescent shrub 2–3 m. in height with a stem covered with rough gray bark, and usually 7–8 cm. in diameter, ascending and wide-spreading branches, and slender branchlets marked by small oblong pale lenticels, yellow-green tinged with red when they first appear, dull red-brown or purplish during their first season, becoming slightly darker the following year, and usually ashy gray during the following season, and armed with stout straight dark purple lustrous spines usually about 2.5 cm. long, and conspicuous globose winter-

buds 3–4 mm. in diameter, with lustrous bright chestnut-brown scales scarious on the margins. Flowers during the first week of June. Fruit ripens and begins to fall about October 20th.

Connecticut: Mumford's Point, Groton, in the region once inhabited by the Pequot Indians, *C. B. Graves*, June and October 1902.

Well distinguished from the other described species of this group by the form of its thin leaves with their long petioles and by the crimson flesh of the pear-shaped fruit.

Crataegus pilosa, n. sp. Leaves ovate to rhombic, acute or acuminate, full and rounded, or cuneate or on leading shoots truncate or subcordate at the entire often glandular base, finely and usually doubly serrate above, with gland-tipped teeth and often, particularly on vigorous shoots, divided into short acute lobes; when they unfold tinged with red and coated above with long pale hairs; nearly fully grown when the flowers open and then thin, membranaceous, pale yellow-green and still slightly pilose; at maturity subcoriaceous, glabrous, dark blue-green on the upper surface, paler on the lower surface, 4–6 cm. long and broad, with slender midribs slightly impressed above and 3 or rarely 4 pairs of thin remote primary veins extending obliquely to the points of the lobes; petioles slender, wing-margined above, deeply grooved, glandular, with few large dark red glands, 1.2–1.4 cm. long; stipules linear to falcate, coarsely glandular-serrate, caducous. Flowers on slender elongated pedicels, in 3–5-flowered glabrous thin-branched compound corymbs; calyx-tube broadly obconic, the lobes short, acute, entire or occasionally furnished with a few small glandular teeth, reflexed after anthesis; stamens 20; anthers small, bright rose color; styles 5 or rarely 4, surrounded at the base by a narrow ring of pale hairs. Fruit erect, subglobose to broadly ovate, often somewhat angled below the middle, dull dark crimson, about 3 cm. long; calyx sessile, with a broad shallow cavity and much enlarged lobes gradually narrowed from broad bases, spreading or reflexed; flesh thin, dry and mealy, pale green; nutlets 4 or 5, thin, acute at the ends, conspicuously and irregularly ridged on the back" with a high rounded ridge, about 1.2 cm. long.

An intricately branched shrub 3–4 m. high, with numerous stout stems covered with rough ashy gray bark, and slender slightly zigzag branchlets marked by oblong scattered pale lenticels, yellow-green when they first appear, dull purple during their first season, chestnut-brown and lustrous when the flowers open the following spring, and finally pale gray tinged with red, and armed with numerous stout nearly straight shining chestnut-brown ultimately ashy gray spines

2–3 cm. long. Flowers about the 20th of May. Fruit ripens and falls the middle of October.

Massachusetts: Thickets, Lancaster, *Mrs. John E. Thayer*, May and October 1902.

Distinguished from all described species of the Pruinosa Group by the abundant hairs on the upper surface of the young leaves which in May make it difficult to distinguish it from some species of the Tenuifolia Group.

++ ++ Anthers yellow.

Crataegus conjuncta, n. sp. Glabrous. Leaves ovate to oval, acute or acuminate, rounded or cuneate, or on leading shoots truncate at the mostly entire base, sharply usually doubly glandular-serrate above, more or less deeply divided into 3 or 4 pairs of acute or acuminate lateral lobes; bronze color when they unfold, and when the flowers open thick and firm, light yellow and more than half grown; at maturity coriaceous, dark blue-green and lustrous on the upper surface, pale on the lower surface, about 5 cm. long, 3.5–6 cm. wide, with thin yellow midribs impressed above and remote slender straight or arching veins extending to the points of the lobes; petioles slender, usually slightly wing-margined above, sparingly and irregularly glandular on the margins, 2–2.5 cm. long; stipules lanceolate to oblong-obovate, glandular-serrate, caducous. Flowers 1.6–1.8 cm. in diameter on slender pedicels, in 5–10, usually 5 or 6-flowered compound thin-branched corymbs; bracts and bractlets linear and acuminate to lanceolate, glandular, pink, caducous; calyx-tube broadly obconic, the lobes gradually narrowed from broad bases, nearly triangular, tipped with bright red glands, entire or coarsely and irregularly glandular-serrate; stamens 20; anthers small, light yellow; styles 3–5, usually 5. Fruit drooping or erect in few-fruited clusters, subglobose, usually broader than long, angled sharply while young, full and rounded at the ends, about 1 cm. in diameter, when fully grown dull green covered with a thick glaucous bloom, at maturity dull orange-red more or less blotched with green and marked by many small dark dots; calyx enlarged, prominent with a well developed tube, a broad deep cavity, and spreading or incurved often slightly serrate lobes dark red on the upper side below the middle; flesh green, thin, hard and dry; nutlets 4 or 5, thick, acute at the ends, ridged on the back, with a high rounded often grooved ridge, 7–8 mm. long.

A broad round-topped intricately branched shrub 3 or 4 m. in height, occasionally arborescent in habit, with one or more stems 5–6 cm. in diameter, light gray scaly bark and slender straight or slightly zigzag

branchlets, light yellow-green when they first appear, becoming bright chestnut or orange-brown and marked by numerous small oblong pale lenticels during their first season, and ashy gray or pale gray-brown the following year, and armed with many stout nearly straight lustrous chestnut-brown ultimately gray spines 2.5–5 cm. long and often pointed toward the base of the branch. Flowers late in May or during the first week of June. Fruit ripens early in October and falls gradually.

Massachusetts: Somerset, *Miss L. H. Handy*, 1900; Topsfield, *T. E. Proctor*, October 1900, June 1901; upland pastures, Boylston and Lancaster, *J. G. Jack*, *Mrs. J. E. Thayer*, and *C. S. Sargent*, 1899 to 1902. Connecticut: Oxford, *E. B. Harger*, May and September 1900 and 1901.

Crataegus cognata, n. sp. Glabrous. Leaves ovate, acute or acuminate, rounded or broadly concave-cuneate at the entire base, sharply and often doubly glandular-serrate above and divided into 3 or 4 pairs of short acute lateral lobes; nearly fully grown when the flowers open and then thin, dark blue-green on the upper surface, pale on the lower surface; at maturity coriaceous, dull blue-green above, pale yellow-green below, 6–6.7 cm. long, 3.5–5.5 cm. wide, with thin yellow midribs deeply impressed above and slender primary veins extending to the points of the lobes; petioles slender, slightly winged at the apex, grooved, glandular, with small dark glands, 2–3 cm. long; stipules linear, acuminate, glandular-serrate, caducous; on vigorous shoots leaves often oblong-ovate, acuminate, subcordate at the base, coarsely serrate, deeply 3-lobed, the lateral lobes acute and much smaller than the terminal lobe, 8–9 cm. long, 7–7.5 cm. wide, their petioles stout, 2–3 cm. long, broadly wing-margined nearly to the base, conspicuously glandular. Flowers about 2 cm. in diameter on long slender pedicels, in broad lax thin-branched 5–7-flowered compound corymbs; bracts and bractlets small linear-obovate, acuminate, glandular-serrate, turning red before falling, caducous; calyx-tube broadly obconic, the lobes gradually narrowed from broad bases, elongated entire or sparingly glandular-serrate, tipped with minute red glands, reflexed after anthesis; stamens 20; anthers pale yellow; styles 3 or 4, rarely 5. Fruit in few-fruited erect or drooping clusters, pyriform or when fully ripe sometimes oblong, pruinose, green or green tinged with red until late in the autumn, becoming dull crimson at maturity, about 1 cm. long, 1.8–1.9 cm. wide; calyx enlarged, with a short tube, a broad deep cavity, and reflexed appressed lobes, often deciduous from the ripe fruit; flesh thin, dry and mealy, greenish yellow; nuttles usually 3 or 4, thick, full and rounded at the ends, prominently ridged on the broad rounded back, with a high rounded ridge, 6–7 mm. long.

A slender arborescent shrub 2–3 m. in height with stems covered with pale gray scaly bark and 7–8 cm. in diameter, small erect and spreading branches, and stout nearly straight branchlets marked by small oblong orange-colored lenticels, olive green tinged with red when they first appear, becoming bright chestnut-brown and lustrous during their first season and dark reddish brown the following year, and armed with stout nearly straight dark purple ultimately gray spines 4–5 cm. long. Flowers at the end of May and early in June. Fruit ripens from the 1st to the 10th of October and usually falls during that month.

Massachusetts: Hill west of the main street of Great Barrington, and roadside between Great Barrington and Alford, *Brainerd* and *Sargent*, May 31, 1902: Great Barrington, *C. S. Sargent*, September 9 and October 4, 1902; Connecticut: Gravelly soil, Poquonnock Plain, Groton, *C. B. Graves*, June, July and October 1901.

Crataegus littoralis, n. sp. Glabrous. Leaves ovate, acute, broadly cuneate or rounded or occasionally narrowed at the entire base, finely often doubly serrate above, with straight teeth terminating in bright red glands, and divided into 3 or 4 pairs of broad rounded or short pointed acute lobes; tinged with red when they unfold, and when the flowers open half-grown and light yellow-green: at maturity thin but firm in texture, dark green and lustrous on the upper surface, pale on the lower surface, 4–6 cm. long, 3–5 cm. wide, with prominent midribs impressed above and 4 or 5 pairs of thin primary veins arching to the points of the lobes; petioles slender, slightly wing-margined toward the apex, conspicuously glandular, often red in the autumn like the under side of the midribs, 2–2.5 cm. long; stipules linear to falcate, acuminate, glandular-serrate, reddish, caducous. Flowers 2 to 2.2 cm. in diameter on slender pedicels in compact 5 to 6-flowered simple corymbs; bracts and bractlets linear, acuminate, glandular-serrate, caducous; calyx narrowly obconic, the lobes gradually narrowed from broad bases, slender, acuminate, entire or sparingly glandular; petals often streaked with purple; stamens 20; anthers large, pale yellow; styles 2–4, usually 3. Fruit short-obovate, erect on the much thickened rigid pedicels, gradually narrowed toward the base, dark crimson, somewhat pruinose, 1–1.2 cm. long, 1–1.1 cm. wide; calyx prominent with a short distinct tube, a broad shallow cavity and spreading lobes usually deciduous from the ripe fruit; flesh thin, hard, greenish or yellowish white, slightly acid; nutlets 2–4, full and rounded at the ends, prominently ridged on the back, with a high round more or less grooved ridge, 6–7 mm. long.

A shrub with a broad open head 1–3 m. in height, with stems

rarely 1 dm. in diameter covered with pale gray smooth or near the ground slightly scaly bark, and slender nearly straight branchlets, green tinged with red when they first appear, becoming light red-brown and marked by oblong pale lenticels during their first season and ashy gray the following year, and sparingly armed with straight stout dark purple ultimately ashy gray spines from 2.5–3 cm. long.

Flowers about June 1st. Fruit ripens early in October and remains for at least another month on the branches.

CONNECTICUT: Rocky banks and elevations bordering salt marshes near Alwive Cove, New London, and Waterford, *C. B. Graves*, June, September and October 1902; *C. S. Sargent*, August 1892.

* * Stamens 10; anthers purple.

Crataegus dissona, n. sp. Glabrous. Leaves ovate to rhombic, acute or acuminate, cuneate and entire below, sharply and doubly serrate above, with straight spreading glandular teeth, and slightly and irregularly divided into acute lateral lobes; tinged with red as they unfold, and nearly fully grown when the flowers open, and then membranaceous and pale yellow-green, at maturity thin but firm in texture, dull dark blue-green on the upper surface, pale on the lower surface, 5–6 cm. long, 4–5 cm. wide, with thin light yellow midribs impressed on the upper side, and few slender primary veins arching obliquely to the points of the lobes; petioles slender, grooved, slightly wing-margined toward the apex, sparingly glandular, with minute dark mostly deciduous glands, 2–2.5 cm. long; stipules linear, acuminate, glandular-serrate, caducous; leaves on vigorous shoots ovate, generally rounded or truncate at the broad base, more deeply lobed than the leaves of lateral branchlets, 5–6 cm. long and broad. Flowers 1.2–1.4 cm. in diameter on slender pedicels, in compact 5–7-flowered compound corymbs; bracts and bractlets linear, glandular-serrate, pink, caducous; calyx-tube broadly obconic, the lobes short, acuminate, entire or slightly glandular-serrate above the middle; stamens 10, or rarely 7–9; anthers pale purple; styles 3 or 4, rarely 5, surrounded at the base by a narrow ring of pale tomentum. Fruit pendant in drooping few-fruited clusters, pruinose, crimson, blotched with green and marked by few large dark dots, 1.2–1.6 cm. in diameter, sometimes 4 mm. broader than high; calyx small, sessile with a narrow shallow tube and erect boat-shaped lobes, their thin acuminate tips mostly deciduous before maturity; flesh thick, dry and mealy, bright yellow-green sometimes tinged with red; nutlets usually 3 or 4, thick, acute at the ends, prominently ridged on the back, with a high rounded ridge, about 7 mm. long.

A slender shrub 2–3 m. in height with stems 5 or 6 cm. in diame-

ter covered with pale gray scaly bark, erect and spreading branches and slender straight or slightly zigzag branchlets, yellow green somewhat tinged with red when they first appear, reddish brown or purple and marked by small pale dots during their first season, becoming grayish brown the following year and ashy gray during their third season, and armed with numerous stout nearly straight chestnut brown or purple ultimately gray spines 4–5 cm. long. Flowers during the last week of May. Fruit ripens and begins to fall the middle of October.

Massachusetts: Rocky upland pastures, Great Barrington, *Brainerd* and *Sargent*, May 1902, *C. S. Sargent*, September and October 1902. Connecticut: Oxford *E. B. Harger*, May and September 1901; East Lyme, *C. B. Graves*, May and September 1902.

Crataegus Jesupi, n. sp. Glabrous. Leaves oblong-ovate, acuminate, broadly cuneate, rounded or rarely truncate at the mostly entire base, doubly serrate above with incurved glandular teeth and usually divided into 4 or 5 pairs of acute lateral lobes, membranaceous, pale yellow-green on the upper surface, paler on the lower surface, 6–7 cm. long, 4–5 cm. wide with slender yellow midribs impressed on the upper side and thin primary veins extending obliquely to the points of the lobes; petioles slender, slightly or on vigorous shoots broadly wing-margined toward the apex, glandular, with small scattered glands, 2–3.5 cm. long; stipules linear to falcate, acuminate, glandular-serrate, caducous. Flowers about 1.7 cm. in diameter on slender elongated pedicels, in broad, usually 7–9-flowered compound corymbs; bracts and bractlets oblong-obovate and rounded or acute at apex, to lanceolate, glandular-serrate, caducous; calyx-tube broadly obconic, the lobes gradually narrowed from broad bases, acute, entire, tipped with bright red glands; stamens 10; anthers dark red; styles 3 or 4, surrounded at the base by a narrow ring of pale tomentum. Fruit obovate to short-oblong, obtusely angled particularly below the middle, bright scarlet, pruinose when fully grown, destitute of bloom at maturity, marked by large dark dots, about 1 cm. long and wide; calyx small with a short tube, a narrow shallow cavity and spreading lobes mostly deciduous before the fruit ripens; flesh thin, dry, pale yellow; nutlets 3 or 4, thick, full and rounded at the ends, prominently and irregularly ridged on the back, with a high rounded ridge; 6–7 cm. long.

A treelike shrub 3–6 m. in height with stems 6–8 cm. in diameter and slender slightly zigzag branchlets marked by small lenticels, olive-green tinged with red when they first appear, reddish brown and lustrous during their first season, becoming gray slightly tinged

with red the following year, and armed with stout straight chestnut-brown ultimately gray spines from 2–4 cm. long. Flowers during the last week of May. Fruit ripens about the middle of October.

Vermont: Moist ground; lower slopes of Twin Mountain, West Rutland, *W. W. Eggleston*, June and October 1900, May and October 1901.

At the suggestion of its discoverer this species is named for Henry G. Jesup, professor at Dartmouth and a critical student of the flora of northern New England.

§ Intricatae.

* Anthers yellow.

Crataegus modesta, Sargent, Rhodora, iii. 28, (1901).

Described from plants growing in a small isolated colony on the rocky ledges of Twin Mountain, West Rutland, Vermont, *Crataegus modesta* is now known to be widely distributed in western New England and to grow near Albany, New York. Southward it grows more vigorously than in the original station, with larger leaves and usually larger fruit.

New York: Rocky hillsides, North Albany, *Charles H. Peck*, May, June, September and October 1901; May and September 1902, *C. S. Sargent*, September 1902. Massachusetts: Hillside, Great Barrington, *Brainerd* and *Sargent*, May 1902; *C. S. Sargent*, September and October 1902. Connecticut: Southington, *C. H. Bissell*, June and September 1901; *L. Andrews*, June and September 1902; Stonington, *C. B. Graves*, September, 1901, May 1902. Specimens in fruit only collected at East Windsor by *C. H. Bissell* (No. 22), at Oxford by *E. B. Harger* (No. 55), at Norwalk, by *C. H. Bissell* (No. 27), at Trumbull by *E. H. Eames* (Nos. 199 & 229), are provisionally referred to this species.

* * Anthers rose color or purple.

Crataegus Stonei, n. sp. Leaves oblong, narrowed to the ends, acuminate, cuneate, entire and often glandular at the base, sharply and doubly serrate above, with straight teeth tipped with dark red glands, irregularly divided into numerous short acute lateral lobes; when they unfold pale yellow green more or less tinged with red, covered above with short pale hairs and villose below along the midribs and veins; more than half-grown when the flowers open and

then membranaceous, at maturity thin but firm in texture, dark yellow-green and scabrate on the upper surface, pale on the lower surface, 7–8 cm. long, 4–5 cm. wide, with orange-colored villose midribs and veins, the thin veins extending obliquely to the points of the lobes; petioles slender, wing-margined toward the apex, slightly grooved, glandular, with stipitate dark glands, villose, 2–3 cm. long; stipules linear, acuminate, glandular-serrate, caducous. Flowers 2 cm. in diameter on stout pedicels, in villose 4–6-flowered simple compact corymbs; bracts and bractlets oblong-obovate, conspicuously glandular-serrate, turning red before falling, large and conspicuous; calyx-tube broadly obconic, coated with long matted pale hairs, the lobes gradually narrowed from broad bases, acuminate, coarsely glandular-serrate above the middle, villose, reflexed after anthesis; stamens 10; anthers large, rose color; styles 3 or 4, surrounded at the base by a broad ring of pale hairs. Fruit erect on elongated rigid slightly villose pedicels thickened toward the apex, obovate, light yellow or greenish yellow, covered toward the gradually narrowed or rounded base with long scattered pale hairs, 1.4 to 1.6 cm. long, 1.2–1.4 cm. wide; calyx large and prominent, with a broad shallow cavity and spreading much enlarged coarsely serrate lobes, dark red on the upper side at the base; flesh thin, dry and mealy; nutlets 3 or 4, thick, obtuse at the rounded ends, prominently ridge, with a high rounded irdge, 9–10 mm. long.

A shrub 1–2 m. in height with numerous intricately branched stems and stout slightly zigzag branchlets marked by occasional small oblong pale lenticels, green tinged with red and glabrous or villose when they first appear, and dark reddish purple and sometimes puberulous during their first season, becoming dull reddish brown the following year and armed with many stout nearly straight red-brown ultimately gray spines 4–6 cm. long and usually pointed toward the base of the branch. Flowers during the first week of June. Fruit ripen about the middle of September.

Massachusetts: Top of Smith Hill; Pelham, *G. E. Stone*, June and September and 1902.

I am glad to associate with this handsome and distinct species the name of its discoverer, Professor George E. Stone of the Massachusetts Agricultural College.

Crataegus Peckii, n. sp. — Leaves oblong-ovate, acute or acuminate, rounded to broadly concave-cuneate at the mostly entire glandular base, doubly serrate above, with straight or incurved gland-tipped teeth, slightly divided into 3 or 4 pairs of broad rounded or acute lobes; coated as they unfold with long matted pale hairs, and nearly fully grown and villose along the midribs and veins below when the flowers open, at maturity thin but firm in texture, dark green and

scabrate on the upper surface, paler on the lower surface, 7–8 cm. long, 5–6 cm. wide, with yellow glabrous or slightly villose midribs and remote primary veins arching to the points of the lobes; petioles stout, slightly wing-margined above by the decurrent base of the leaf-blades, glandular with large dark glands, at first villose, glabrous and more or less deeply tinged with red in the autumn, 1.8–2.5 cm. long; stipules linear, coarsely glandular-serrate, mostly deciduous before the flowers open; on vigorous shoots leaves usually broader than long, rounded or cordate at the base, more deeply lobed than the leaves of fertile branchlets, 6.5–6 cm. wide, usually about 6 cm. long, the lower side of the stout midribs often bright red. Flowers 1.5–1.7 cm. in diameter, in 3–6-flowered simple or compound slightly villose corymbs; bracts and bractlets oblong-obovate and acute to linear and acuminate, coarsely glandular-serrate, caducous; calyx-tube broad, abruptly narrowed below into the short villose pedicel, the wide lobes entire below the middle, foliaceous, laciniately divided and glandular above the middle, acuminate at the apex; stamens 10; anthers large, pink or pale purple; styles 3 or 4. Fruit in few-fruited erect clusters on short slight villose pedicels, subglobose to short-oblong or ovate, full and round and slightly hairy at the ends, light yellow-green more or less tinged with red, lustrous, marked by few large dark dots, 1.8–3 cm. long; calyx enlarged, with a short tube, a broad deep cavity, and spreading or rarely erect lobes coarsely serrate toward the apex; flesh thick, green, dry and mealy; nutlets 3 or 4, obtuse at the ends, prominently ridged on the broad rounded back, 1.6–1.8 cm. long.

A broad shrub 1–2 m. tall, with numerous intricately branched stems covered with dark gray bark and stout nearly straight branchlet marked by many large oblong pale lenticels, orange-brown and more or less villose when they first appear, light red-brown and usually villose during their first season, becoming dark gray-brown the following year, and sparingly armed with slender slightly curved chestnut brown ultimately gray spines 3.5–6 cm. long. Flowers during the first week of June. Fruit ripens from the first to the middle of October.

New York: On a slate stone knoll a few miles north of Troy, on the Hudson River, in Lansingburg, *C. H. Peck*, June, September and October 1901 and 1902. To this species I have referred provisionally fruiting specimens of a shrub collected by me on a hill west of the main street of Great Barrington, October 4, 1902.

Professor Charles H. Peck, the distinguished state botanist of New York, who has recently discovered in the neighborhood of Albany several other undescribed forms in this genus, permits me to associate his name with this handsome species.

Crataegus Bissellii, n. sp. Glabrous. Leaves oval and gradually narrowed to the ends, or rarely ovate and broadly cuneate or rounded at the base, acute or acuminate at the apex, coarsely and often doubly glandular-serrate except toward the glandular base, thin but firm in texture, dark dull blue-green on the upper surface, pale yellow-green on the lower surface, 4–6 cm. long, 2.5–4 cm. wide, with thin orange-colored midribs and usually four pairs of slender primary veins; petioles slender, slightly wing-margined toward the apex, glandular, with small dark glands, 2–3 cm. long; stipules linear, acuminate, coarsely glandular-serrate, caducous; on leading shoots sometimes broadly ovate, acute, full and rounded or very rarely subcordate at the base, often slightly 3–lobed, with small acute lateral lobes, 5–6 cm. long and broad. with stout petioles broadly wing-margined above the middle and foliaceous lunate coarsely glandular-serrate stipules often 1 cm. in length. Flowers about 1.5 cm. in diameter on slender elongated pedicels in 4–7-flowered compound corymbs; bracts and bractlets linear to oblong, acuminate, coarsely glandular-serrate, reddish, large and conspicuous, caducous; calyx-tube broadly obconic, the lobes gradually narrowed from broad bases, coarsely but irregularly glandular-serrate; stamens 10; anthers small, pink to rose-purple; styles 3 or 4. Fruit in drooping clusters, pyriform, gradually narrowed below into the slender pedicel, dull orange-red more or less tinged with green, 1.2–1.4 cm. long, 9–10 mm. wide; calyx large and prominent, with a short tube, a broad deep cavity, and reflexed lobes usually serrate only toward the apex, and bright red on the upper side below the middle; flesh thin, yellow-green, dry and mealy; nutlets 3 or 4, thick, rounded at the obtuse ends, prominently ridged on the back, with a broad rounded ridge, 7–8 mm. long.

A shrub usually about 1, very rarely 2, m. in height with numerous stems covered with pale gray bark, spreading branches, and thin nearly straight branchlets marked by occasional small pale lenticels, bright chestnut-brown and lustrous during their first season, becoming pale reddish brown the following year, and unarmed or armed with slender nearly straight purple lustrous ultimately ashy gray spines mostly pointed toward the base of the branch, 2.5–4 cm. long. Flowers at the end of May or during the first week of June. Fruit ripens from the 20th of September to the 10th of October and falls as soon as it is ripe.

Connecticut: Open pastures in rich moist soil, or borders of thickets in dry and hard or sandy soil, and on low hills of trap rock in and near Southington, *C. H. Bissell*, September 1900, June and October 1901; *L. Andrews*, May, June and September 1902; *C. S. Sargent*, September 1902.

Crataegus Hargeri, n. sp. Glabrous. Leaves ovate to ovate-oblong, acute or acuminate, full and rounded or broadly cuneate, or gradually narrowed at the mostly entire base, sharply and often doubly serrate, with spreading glandular teeth, thin but rigid in texture, light yellow-green on the upper, pale on the lower surface, about 3 cm. long, 2–2.3 cm. wide, with slender yellow midribs and primary veins deeply impressed on the upper side; petioles slender, slightly wing-margined at the apex, glandular with numerous dark persistent glands, 1.3–1.5 mm. long; on leading shoots leaves ovate, rounded or short-pointed at the apex, truncate to subcordate at the base, deeply 3-lobed, with small rounded or short-pointed lateral lobes, often 4.5–5 cm. long and wide, with stout petioles wing-margined almost to the base and foliaceous lunate coarsely glandular-serrate stipules. Flowers about 1.2 cm. in diameter on slender elongated pedicels in 3–5-flowered compound corymbs; bracts and bractlets linear to oblong-obovate, acute or acuminate, coarsely glandular-serrate, reddish before falling, caducous; stamens 10; anthers large, rose color; styles 3; calyx-tube narrowly obconic, the lobes gradually narrowed from broad bases, acuminate, entire or irregularly glandular-serrate, reflexed after anthesis. Fruit on slender erect pedicels 1.5–2 cm. in length and gradually enlarged at the apex, obovate, full and rounded above, abruptly narrowed below, dull orange-green, 1–1.2 mm. in length, calyx large and prominent with a long tube, a deep broad cavity and reflexed lobes; flesh thin, green dry and mealy; nutlets 3, thick, full and rounded at the ends, prominently ridged on the back, with a broad rounded often grooved ridge, about 6 mm. long.

A straggling semiprostrate shrub usually not exceeding 1 m. or very rarely 2 m. in height, with stems 2–3 cm. in diameter and covered with ashy gray bark, and slender slightly zigzag branchlets dark olive green tinged with red when they first appear, dull red-brown and marked by few large pale lenticels during their first season, becoming light reddish brown the following year, and armed with many straight very slender light red-brown lustrous spines 3–5 cm. long spreading in all directions and long persistent on the old stems, and nearly globose winter-buds 3–4 mm. in diameter and covered with orange-red lustrous scales rounded and scarious on the margins. Flowers at the end of May. Fruit ripens toward the end of September without becoming soft and remains on the branches after the leaves have fallen.

Connecticut: Rocky pastures, Oxford, *E. B. Harger*, May, June and September 1901, May and September 1902; *C. S. Sargent*, September 1902; Southington, *C. H. Bissell*, September 1901; *L. Andrews*, May and September 1902.

Arnold Arboretum.

ANDROMEDA POLIFOLIA AND A. GLAUCOPHYLLA.

M. L. Fernald.

The attractive Bog Rosemary of our American swamps and wet shores is familiar to all northern botanists as *Andromeda Polifolia*. Under this name alone it has passed for more than half a century, its supposed range including all boreal America, Europe and Asia; and one observer of more than ordinary keenness has even ventured the statement that "this species, although so widely distributed, retains its form without variation in all latitudes"[1] from southern Canada to the Arctic Sea. Yet if we examine the material which is passing in America as *Andromeda Polifolia* we shall find that in general the plant of temperate bogs — from central Labrador to Pennsylvania, Minnesota and Lake Winnipeg — differs in nearly every feature from the plant of arctic Europe, Asia, and America (northern Labrador to Alaska).

True *Andromeda Polifolia*, described by Linnaeus as growing "*in* Europae *frigidioris paludibus turfosis*" and now known to extend across northern Asia and Arctic America, in general resembles the common shrub of New England and Canadian bogs, and it is not surprising that the two should have been confused. *A. Polifolia* has the leaves covered beneath, at least when young, with a glaucous bloom, which, however, may be quite deciduous in the older leaves; its young shoots are green and not glaucous; its scaly terminal buds are brownish but rarely glaucous, and from them arise the few flowers nodding singly at the tips of slender nearly straight pedicels often three or four times their length; the calyx-lobes are either pale or red-tinged; and the brown or reddish capsule is subglobose or obovoid, usually higher than broad. This plant, found ordinarily in the arctic regions, extends south in Europe to the Venetian Alps, in eastern Asia to Japan, and in America to Sitka, Lake Huron, and possibly to the mountains of New York.

The commoner plant of eastern America — from latitude 55° in Labrador to Lake Winnipeg, Minnesota and Pennsylvania — resembles *A. Polifolia* in foliage, but the under surface of the leaf, instead of bearing a deciduous paint-like glaucous coat, is tomentulose or

[1] Macoun, Cat. Can. Pl. i. 297.

pulverulent with fine white hairs; the young branches and the scaly buds are conspicuously glaucous; the flowers are borne on thicker curving pedicels as long or barely twice as long as the corolla; the calyx-lobes are whitish; and the very glaucous almost baccate capsule is depressed and turban-shaped, much broader than high.

Although these important differences between the Eurasian *Andromeda Polifolia* and its commoner American representative have so long been quite overlooked by American botanists, they were not unnoticed by early students of our flora. To Linnaeus, apparently, the American plant was quite unknown, and his *A. Polifolia*, based entirely upon European descriptions and specimens, is fortunately freed from any possible confusion with our plant.

The first botanist to distinguish our common species was apparently L'Heritier de Brutelle who seems to have characterized and illustrated as "*Andromeda Polifolia latifolia*" the American plant. The special volume in which L'Heritier discussed this plant was never published though the manuscript and plate were undoubtedly seen by Aiton, who in 1789 took up and described the plant under L'Heritier's name. Aiton treated *Andromeda Polifolia* as embracing three varieties as follows:[1]

Polifolia. 3. A pedunculis aggregatis, corollis ovatis, foliis alternis lanceolatis revolutis. *Sp. pl.* 564.

latifolia. α foliis oblongis, corollis ovatis incarnatis, laciniis calycinis patentibus ovatis albis: interdum apice rubicundis.

Andromeda polifolia latifolia. *L'Herit. stirp. nov. tom.* 2. *tab.* 11.

Broad-leav'd Marsh Andromeda.

media. β foliis lanceolatis, corollis oblongo-ovatis, rubicundis, laciniis calycinis magis erectis.

Common Marsh Andromeda, or Wild Rosemary.

angustifolia. γ foliis lanceolato-linearibus, laciniis calycinis oblongis rubris.

Narrow-leav'd Marsh Andromeda.

Nat. α. of North America; β. of Britain; and γ. of Newfoundland and Labrador.

Fl. May —— September. H. ♄.

[1] Aiton, Hort. Kew. ii. 68.

Aiton's variety α, *latifolia*, from North America, with spreading white calyx-lobes is undoubtedly the common plant of our northern bogs; his var. β, *media*, is the common *A. Polifolia* of northern Europe; but his var. γ, *angustifolia*, from Newfoundland and Labrador, is slightly problematic. The character "laciniis calycinis oblongis rubris" agrees well with a dwarf form of the true *A. Polifolia* known from Hebron, Labrador, from Lake Huron, and from the Mackenzie District and Alaska; but so far as known to the writer all the material from Newfoundland is the common American plant with white or whitish calyx-lobes.

The next treatment of the species of special interest was that of Pursh in 1814. Pursh closely followed Aiton in distinguishing two American varieties of *Andromeda Polifolia*, α, *angustifolia*, Ait., and β, *latifolia*, Ait., adding: "I strongly suspect the variety α. to be a distinct species, which might be called *A. rosmarinifolia*."[1] This narrow-leaved form with red calyx-lobes, as already stated, is known not only from Labrador, but from Lake Huron, Mackenzie and Alaska, and in the Old World it seems to be not infrequent. In fact, from the ordinary form of *A. Polifolia*, it differs only in its narrower more revolute leaves. In the common American plant which has ordinarily passed with us as *A. Polifolia*, both narrowly linear strongly revolute and oblong essentially flat leaves are often found on the same plant, as already noted by Macoun, who says "Young and late shoots have wider leaves than the normal form."[2] Similarly in 1778 Pallas, whose beautiful plate shows clearly the different phases of the Old World plant, after describing the common narrow-leaved form shown in his figures A and B, added to the characterization "imo interdum latifolius (fig. D)"[3] — a figure of a sterile shoot which closely simulates the broad-leaved young branches of the American plant. Thus it is evident that the breadth of leaf in true *A. Polifolia* as well as in its common American representative is largely due to the stage of development and is of no value as a diagnostic character.

In 1821 the common American plant was described by Link as a species distinct from the European *Andromeda Polifolia*, a course which, as shown by Link's description and notes, was based upon a

[1] Pursh, Fl. 291.
[2] Macoun, Cat. Can. Pl. i. 297.
[3] Pallas, Fl. Ross. i. pt. 2, 53, t. 71.

more discriminating study than the plant has since been accorded. Link's description was as follows: "*A. glaucophylla.* Foliis linearibus margine revolutis subtus albidis, floribus aggregatis terminalibus, pedunculis corolla ovata parum majoribus, antheris versus apicem aristatis. A. polifolia β. Pursh *am.* i. 291. Differt a praecedente cui similis pedunculorum magnitudine, qui in illa duplo longiores corolla et ultra. Folia subtus alba nec tomentosa. Glandulae inter stamina."[1]

Thus Link knew and pointed out most of the prominent features which separate the characteristic Andromedas of the two continents. Yet little attention seems to have been given to his work, although in 1834 George Don, who divided the aggregate *A. Polifolia* into many formal varieties, gave it partial recognition by attempting to keep Link's species as a variety apart from *A. Polifolia*, var. *latifolia*, Ait. Don was followed in this treatment by DeCandolle, but later authors have very generally treated the common American and European plants as one. That the two are clearly distinct species is sufficiently apparent from the foregoing discussion of the plants whose main characters are again briefly stated, and whose fruiting tips are shown in the figures kindly prepared by Mr. F. Schuyler Mathews.

Fig. 1

ANDROMEDA POLIFOLIA, L. (Fig. 1). Low shrub with elongate creeping base; stem simple or with ascending branches, 0.5 to 3 dm. high: leaves coriaceous, linear to narrowly oblong, entire, either flat or strongly revolute, glabrous, at first generally whitened beneath with a paint-like coat, later often quite green: young branches and bud-scales usually not glaucous: pedicels filiform, straightish, 2 to 4 times exceeding the nodding flower and erect fruit: corolla globose-urceolate: calyx with pale or usually reddish slightly ascending lobes: capsule brown or reddish, obovoid or subglobose, as high as broad.— Sp. 393 (1753), & Fl. Lap. 131, t. 1, fig. 2; Oeder, Fl. Dan. i. 11, t. 54; Pallas, Fl. Ross. i. pt. 2, 53, t. 71; Hook. Fl Bor.-Am. ii. 38, in part; Reich. Ic. Fl. Germ. xvii. 80, t. 110, fig. 1; Thomé, Fl. Deutschl. iv. 4, t. 463. Var. *media*, Ait. Hort. Kew. ii. 68 (1789); G. Don, Gen. Syst.

[1] Link, Enum. i. 394.

iii. 829; DC. Prodr. vii. 607. Var. *angustifolia*, Ait. Hort. Kew. ii. 68 (1789); Pursh, Fl. 291. Vars. *subulata*, *minima*, and *oleifolia*, G. Don, l. c. (1834). *A. rosmarinifolia*, Pursh, Fl. 291 (1814); G. Don, l. c. *A. Polifolia*, var. *rosmarinifolia*, DC. l. c. *Rhododendron Polifolium*, Scop. Fl. Carn. ed. 2, i. 287 (1772). — Arctic regions, extending south in Europe to Great Britain, and in the mountains to northern Italy; in Asia to Japan, &c.; and in America to Sitka (various collectors); Lake Huron (*Todd*), and "mountains, New York" (*Durand* in Herb. Thurber). Very local in temperate America, but to be expected on the mountains of northern New England.

A. GLAUCOPHYLLA, Link. (Fig. 2). Similar in habit: leaves white beneath with close fine pubescence: branchlets and bud-scales glaucous: flowers on thickish curved pedicels rarely twice as long as the urceolate corolla: calyx-lobes whitish, usually spreading: capsule depressed, turban-shaped, glaucous. — Enum. Hort. Berol. i. 394 (1821). *A. Polifolia* of Am. authors in general. *A. Polifolia*, var. *latifolia*, Ait. Hort. Kew. ii. 68 (1789); Pursh, Fl. 291; Lodd. Bot. Cab. vi. no. 546; G. Don, l. c.; DC. l. c. *A. Polifolia*, var. *angustifolia*, Lodd. l. c. xvi. no. 1591 (1829), not Ait., and var. *revoluta* Lodd. l. c. xviii. no. 1725 (1831). [Loddiges ascribes the plants from which his plates were drawn to northern Europe, but probably they originated in America and later in cultivation were supposed to be European.] *A. Polifolia*, var. *glaucophylla*, G. Don, Gen. Syst. iii. 829 (1834); DC. l. c. *A. americana*, Hort., and *A. canadensis*, Hort. acc. to DC. l. c. (1839). — In sphagnum swamps and wet mossy shores and banks, from Aillik Bay (lat. 55°), Labrador to Lake Winnipeg, south to Minnesota, Pennsylvania and northern New Jersey.

Fig. 2

GRAY HERBARIUM.

RECORDS OF SOME PLANTS NEW TO MAINE.— On July 13th, 1902, while I was collecting along the water front below Bangor in company with Mr. F. M. Billings, we found a number of specimens of vetch-like leguminous plants growing in the gravelly ballast, which had been left there by some Italian vessels. Not being able to identify

them I referred them to Mr. M. L. Fernald of the Gray Herbarium and he has determined them as *Lens ervilea* L. and *Lens esculenta* Moench. The plants were growing together and I had supposed they were all of the same species until I submitted them to Mr. Fernald, though after knowing the truth I was able to see that they were quite different from each other.

On Aug. 10th, 1902, I collected specimens of a plant which was growing in various localities such as the rear of outbuildings, dumps and similar waste places, and which though sparingly occurring was seen in at least four localities in Bangor. Mr. Fernald pronounces this to be *Nonnea rosea* Link of Europe.— O. W. Knight, Bangor, Maine.

The Ulothricaceae and Chaetophoraceae of the United States.[1] — The plants included in the two families considered in this memoir are distributed all over the world, occurring abundantly in fresh water, and to a less extent in salt. Although the genera are pretty well marked, the species have been much confused, and practically no critical work has heretofore been done on the American forms. The present memoir is a careful attempt to clear up the American field, and will be very welcome to all algologists. Dr. Hazen has studied the living plants, both in the field and in the laboratory, for several years; he has had at his command all the literature and exsiccatae of the subject; and the result will probably be the standard for a long time to come. The principles adopted in the nomenclature may be best understood by two quotations: — p. 139, "In nomenclature, the Rochester code has been followed generally, though perhaps not with absolute rigidity in the case of one or two generic names": — p. 136, "One great source of confusion has been the incorrect determination of specimens, particularly manifested in the practice of forcing a given form into a certain species, or in other words, stretching a specific diagnosis. . . . . In case of doubt it is much less confusing to make a new species." As a result of the principle given in the first quotation, together with the principle of anchoring the generic name to the first species described under it by its author, two changes are made in generic names: *Tribonema* Derbés and Solier, in place of *Conferva; Myxonema* Fries, in place

[1] Mem. Torr. Bot. Club, Vol. XI, pp. 135–250, Pl. 20–42.

of *Stigeoclonium*. In a footnote *Hormiscia* Fries is proposed in place of *Urospora* Areschoug, but the genus is removed from the scope of the present paper. If we accept the author's principles, we cannot escape from the last two changes; as regards the first, the vital question is, what is the *Conferva* of Linnaeus? This can only be settled by the original specimens; if any are in existence, the examination should be made at once; if none are to be found, or if, as is rather likely, their condition is such as to render certainty in the matter impossible, it would hardly seem expedient to discard *Conferva*, as it is now used with a quite definite extension by practically all algologists.

This question of the actual type specimens is the one which may, if any, seriously affect Dr. Hazen's conclusions, in other particulars than the *Conferva* question. Until the test is actually made, no one can say whether we can reach any certain conclusions from specimens often over a century old, when even comparatively modern dried specimens are often of doubtful value; but until we either know, or are sure that we cannot know what the type was, is it not better to take the more conservative course, and make as few changes as possible? The burden of proof certainly rests on the one proposing the change.

Apart from the question just considered, there is little but praise to give the work. Descriptions and plates are clear, localities are given with dates and with collectors' or exsiccatae numbers. The work is of special interest to New England botanists, as of the 56 species recognized, 10 of them being new, 44 are represented at New England stations. Two forms and two varieties are recognized, the distinction being clearly made between form and variety; there are notes on 28 rejected or doubtful species and varieties.

The reviewer feels a real satisfaction, in which he is sure others will join, that when these hitherto perplexing and exasperating plants appear in the early spring of 1903, we shall be in a very different position in regard to them from the one we have heretofore occupied. — F. S. Collins.

ORGANIZATION OF THE CONNECTICUT BOTANICAL SOCIETY.

E. H. Eames, M. D.

Connecticut affords much interesting material relating to the flora of New England, partly because of its situation and the influence favoring the northward and southward distribution of numerous species. Study of these and other features being of permanent interest, it has been considered advisable to organize the botanists of the state into a *Connecticut Botanical Society*, for the collection and diffusion of correct information relating to the flora of the state, and to promote social intercourse among its members.

In fulfillment of this object, a meeting was held in New Haven, January 24th, 1903, when a simple constitution was adopted, and the following officers elected:— President, Professor A. W. Evans; Vice-President, Dr. C. B. Graves; Recording Secretary and Treasurer, Dr. E. H. Eames; Corresponding Secretary, Mr. E. B. Harger, Oxford, Connecticut.

An interesting program followed, the first paper of the day being on "November Wild Flowers," by Mr. E. B. Harger, in which the speaker described the various features pertaining to the flowering of plants at this late season. Lists and summaries for a number of years revealed about 175 species as having been found in flower in his neighborhood, with an average number for each year of about 75 species.

Field meetings being of much interest to the Society, it was decided to hold such a meeting in some little known part of the state to cover two or three days; also one-day meetings in places more readily accessible.

At the afternoon session, Mr. M. L. Fernald spoke most interestingly and at length, "On the Geographic Distribution of certain New England Plants." The known distribution of numerous species and varieties was cited, with special reference to their extra-limital occurrence and isolated stations in Europe, Asia and antipodal Japan. The Ice Age in its relation to the distribution of plants, was reviewed in explaining the otherwise seemingly erratic occurrence of many northern species, as well as some peculiar varietal or specific distinc-

tions resulting from long continued isolation on our own and other continents.

The various species dwelt upon in this fascinating discourse, were abundantly illustrated with selected herbarium specimens, a feature greatly appreciated.

As an instance of the northward extension of range in the present day, Mr. Fernald noted the Fringed Gentian in Central Maine, which he has seen to advance northward some fifty miles, under special conditions.

In conclusion, it was stated that Gaspé Peninsula, Quebec, has in its flora about 75% of circumboreal species, the percentage gradually decreasing to about 50% on Mt. Desert, 21% in Vermont, and 17% in Connecticut and on Long Island.

Mr. W. E. Britton, in a paper immediately following, entitled "Notes on the Flora of the North Haven Plains," elucidated the features of this region and its varying plant inhabitants. This was accompanied by photographs and a catalogue of the plants which had been observed.

Discussion on botanical matters in general was full of interest, and amply illustrated the advantages of such meetings. Moreover, an initial attendance of thirty-one botanists, quickly followed by a number of applications for membership, gives promise of a permanent and active organization.

Accurate and conscientious work upon a catalogue of the flora of the state being one of the most important objects of organization at this time, a committee was appointed by the President, pursuant to an article in the Constitution to collect and publish material for such work.

The committee on the Phaenogamous and Vascular Cryptogamous plants is as follows: — Dr. C. B. Graves, New London; Dr. E. H. Eames, Bridgeport; Mr. C. H. Bissell, Southington; Mr. L. Andrews, Southington; Mr. E. B. Harger, Oxford, and Mr. J. N. Bishop, Plainville. A committee to take charge of work upon the lower Cryptogams will be announced later. It is hoped that anyone who can contribute specimens and information relating to the flora of Connecticut, will communicate with a member of these committees. Aid of this kind will be gratefully received, and it is safe to say that the botanical world at large will, so far as its interest in this work is concerned, equally appreciate all such assistance.

Bridgeport, Connecticut.

ON January 27th, 1903, DR. LORIN LOW DAME died after brief illness at his home in Medford, Massachusetts, in his sixty-fifth year. An experienced and talented educator, Dr. Dame has for many years possessed the respect and esteem of a wide acquaintance. Among botanists he was well known for the admirable Flora of Middlesex County, Massachusetts, of which he was the senior editor, and for two valuable works upon the trees of New England. Dr. Dame was one of the founders of the New England Botanical Club, and through the seven years of its existence has been one of its most devoted members.

Vol. 5, no. 1, including pages 1 to 40 and plates 41 to 43, was issued January 31, 1903.